

## **14. 700 MHz Interoperability/Channel Nomenclature**

Region 51 will follow the State of Texas' interoperability/channel nomenclature.

## **15. NCC 700 MHz Pre-Assignment Rules/Recommendations**

### **15.1. Introduction**

This section describes a process for coordinating the initial block assignments of 700 MHz channels. The allocation of spectrum provided by CAPRAD is for planning purposes, particularly defining the minimum channels usage at the border of region 51 and neighboring Regions. Channel packing beyond CAPRAD will be based upon actual technical parameters and jurisdictional coverage requirements of the specific licensees. As such, CAPRAD provides a starting point for channel allotment not the most efficient utilization of the spectrum. The Region 51 Committee has the authority to utilize specific engineering analysis to move beyond CAPRAD to satisfy the spectrum requirements of public safety licensees.

### **15.2. Overview**

Assignments will be based on a defined service area for each applicant. This will normally be an area defined by geographical or political boundaries such as city, county or by a data file consisting of line segments creating a polygon that encloses the defined area. The service contour is normally allowed to extend slightly beyond the geo/political boundaries such that systems can be designed for maximum signal levels within the boundaries, or coverage area. Systems must also be designed to minimize signal levels outside their geo/political boundaries to avoid interference into the coverage area of other co-channel users.

For co-channel assignments, the 40 dB $\mu$  service contour will be allowed to extend beyond the defined service area by 3 to 5 miles, depending on the type of environment: urban, suburban or rural. The co-channel 5 dB $\mu$  interfering contour will be allowed to overlap the 40 dB $\mu$  service contour of the system being evaluated only in the extended service area and only if the overlap degradation of service area does not exceed 2%. For adjacent and alternate channels, the 60 dB $\mu$  interfering contour will be allowed to overlap the 40 dB $\mu$  service contour of the system being evaluated only in the extended service area and only if the overlap degradation of service area does not exceed 2%. The service contour reliability is defined at F(95,50), while the interference contours are defined at F(50,50).

Extension of the service contour is required to:

- Allow in-building coverage at the edge of the jurisdictional area

- Permit mobile communication during excursions beyond the jurisdictional area on an itinerant basis<sup>1</sup>

### 15.3. Discussion

Based upon the ERP/HAAT limitations referenced in 47CFR ¶ 90.541(a), the maximum field strength will be limited to 40 dB relative to 1µV/m (customarily denoted as 40 dBµ). It is assumed that this limitation will be applied similar to the way it is applied in the 821-824/866-869 MHz band. That is, a 40 dBµ field strength can be deployed up to a defined distance (extended service area) beyond the edge of the service area, based on the size of the service area or type of applicant, i.e. city, county or statewide system. The value of 40 dBµ in the 700 MHz band corresponds to a signal of -92.7 dBm, received by a half-wavelength dipole antenna.

Two primary concerns are addressed by the Region 51 Committee:

- Public safety systems must provide reliable ubiquitous coverage within the service area
- Public safety systems must be cost effective and not prohibitive to construct and operate

The Committee has chosen to define the service area to the public safety standard of 95% faded reliability to an extended service area 3-5 miles outside of the licensee's jurisdictional area or 3-5 miles beyond the combined jurisdictions in a multi-jurisdictional system. This provides a proper balance between the need to conserve and re-use spectrum, and the necessity to provide reliable service coverage at an affordable infrastructure cost.

### 15.4. Portable In-Building Coverage

Most Public Safety communications systems, today, are designed for portable in building coverage and the requirement for a typical coverage reliability of 95%. Buildings of 20 dB or greater penetration loss can be located at any point within the jurisdictional polygon of the licensee. The permitting of the service contour to extend 3-5 miles beyond the jurisdictional polygon at a faded 95% reliability will improve the ability to communicate into buildings located at the jurisdictional line. However, the Committee understands that this extended service area alone may not address the in-

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<sup>1</sup> Mobile communication beyond the jurisdictional boundary at a high reliability level is particularly important during the early stages of 700 MHz development. Mobile units may travel outside of the jurisdiction on an exigent basis and find that they are without any communication, particularly of adjacent jurisdictions are not operable at 700 MHz and/or the national interoperable channels are not constructed. This is an unacceptable situation.

building requirements of all licensees, particularly when a very high loss building is located at or very close to such boundaries. In these cases the licensee will need to specifically address the particular building with unique and innovative approaches.

## **15.5. Service Contour Extension Recommendation**

The resulting recommendation for extending the 40 dB $\mu$  service contour beyond the service area boundary is:

Urban (20 dB Buildings):	5 miles
Suburban (15 dB Buildings):	4 miles
Rural (10 dB Buildings):	3 miles

The Region 51 Committee may waive these limits upon demonstration by the licensee that the urbanization classification does not properly address the licensee's situation; however the maximum distance of the service area extension is 5 miles in all situations.

## **15.6. Interfering Contour**

The service and interference contours are plotted at differing reliability requirements. As such a direct relation between the dB levels is not proper. The service area is defined as 40 dB $\mu$  F(95,50), with is approximately 13 dB above a 40 dB $\mu$  F(50,50) contour, assuming a standard deviation of approximately 8 dB. Contours are calculated using methods described in TIA TSB-88B (or a subsequent later version), by using Okumura-Hata-Davidson propagation modeling, relative to an open environment. The modeling is to be based on a 1 arc second terrain data. Land Use-Land Cover (LULC) losses are to be applied; however the diffraction portion of the modeling, where it can serve to artificially limit the size of the contour, must be disabled<sup>2</sup>.

## **15.7. Co-Channel Interfering Contour Recommendation**

The Committee will allow the constructed 40 dB $\mu$  F(95,50) service contour to extend beyond the edge of the defined service area by the distance indicated in 15.5.

A co-channel shall be allowed to have its 5 dB $\mu$  (50,50) interfering contour to overlap the 40 dB $\mu$  extended service contour of the system being evaluated only if the reduction of overlap of the extended service area does not exceed 2% and does not overlap into the jurisdictional service area.

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<sup>2</sup> Diffraction modeling may limit the size of the contour by drawing the contour line at the first point where the signal drops below the contour limit, even if the signal increases beyond that point.

## **15.8. Adjacent and Alternate Channel Considerations**

Adjacent and alternate channels are treated as being on channel signals reduced by the value of Adjacent Channel Coupled Power (ACCP). This assumes that the primary mechanism for interference results from transmitter sideband noise appearing as an on-channel signal within the receiver bandwidth. Using the 47 CFR § 90.543 values of ACCP can facilitate the coordination of adjacent and alternate channels.

Based on 47 CFR ¶ 90.543 and the P25 requirement for an ACCP 65 dB into a 6.0 KHz channel bandwidth and leaving room for a migration from Phase 1 to Phase 2, allows for making the simplifying assumption that 65 dB ACCP is available for both adjacent 25 KHz spectrum blocks. For spectrum blocks spaced farther away, it must be assumed that transmitter filtering, in addition to transmitter performance improvements due to greater frequency separation, will further reduce the ACCPR. Therefore it is recommended that a consistent value of 65 dB ACCPR be used for the initial coordination of adjacent 25 KHz channel blocks. Rounding to be conservative due to the possibility of multiple sources allows the Adjacent Channel Interfering Contour to be approximately 20 dB above the 40 dBμ service contour, at 60 dBμ.

## **15.9. Adjacent Channel Interfering Contour Recommendation**

An adjacent channel shall be allowed to have its 60 dBμ (50,50) interfering contour overlap the 40 dBμ extended service contour of the system being evaluated only if the overlap degradation of the extended service area does not exceed 2% and does not overlap into the jurisdictional service area.

## **15.10. Final Detailed Coordination**

The coordination for frequencies prior to system procurement does not address the specific and unique circumstances of the particular system and is only adequate for presorting large blocks of spectrum to potential entities. A more detailed analysis should be included in the actual design phase to take all the issues into consideration. A detailed report to the Region 51 Committee is to be submitted by each license detailing the “As Built” system once it is completed for the purposes of subsequent channel assignment. This information is available to other potential licensees to assist with licensing and coordinating those new systems to avoid interference.

Additional factors that should be considered include:

- Degree of Service Area Overlap
- Different size of Service Areas
- Different ERPs and HAATs

- Actual Terrain and Land Usage
- Differing User Reliability Requirements
- Migration from Project 25 Phase 1 to Phase 2
- Site Separation
- Actual ACCP
- Balanced Systems
- Mobiles vs. Portables
- Use of voting
- Use of simulcast
- Radio specifications
- Simplex Operation

Special attention needs to be paid to the use of simplex operation. In this case, an interferer can be on an offset adjacent channel and in extremely close proximity to the victim receiver. This is especially critical in public safety where simplex operations are frequently used at a fire scene or during police operation. Simplex operations, other than those on the low power or interoperable channels, are generally not offered protection from interference.

## 16. Region 51 Channel Assignments

The frequency distribution plan for Region 51 has been based on the criteria set forth by the Region 51 RPC. The RPC for Region 51 has elected to configure the channel distribution plan based on a 12.5 KHz channel bandwidth as the original CAPRAD assignments were woefully inadequate for the needs of the Region. After careful engineering modeling and review to determine the most efficient use of available spectrum and to insure no interference with surrounding regions, the following tables contains the channel assignments at 12.5 KHz bandwidth channels. This will preclude the need for 25 KHz channel allocations in most areas with the exception of some bordering counties for the purposes of interoperability.

### 16.1. 700 MHz Channel Assignments for Region 51

#### 16.1.1. Methodology

The allocation of Region 51 channels was initiated utilizing the CAPRAD foundation of frequency assignments. The Harris County area, being central to Region 51, received the first layer of frequency assignments as part of the assignment process. This is the 1st Reuse Group assigned from the basic CAPRAD pool of frequencies in a narrowband 12.5 KHz configuration. The channel assignment to other counties was performed utilizing Normalized Capacity Loading and by availability from the existing CAPRAD configuration after the First Reuse assignments were completed. This was required in order to accommodate the channel spacing needed for the application of antenna systems. Due to the large population and number of channels allocated within Harris County, the assignment of channels in surrounding counties in some cases resulted in the splitting of 25 KHz groupings. Should 25 KHz channel designs be needed for a specific application or area in the Region, the channel plan could be reworked to accommodate the reconstruction of a limited quantity of 25 KHz channel slots. The assignment of channels was based on the following criteria:

- Maintain the integrity of all adjacent regions.
- Use one point (county centers) from which to calculate co-channel separations. Coordinates for these county centers were obtained from CAPRAD.
- Use Adjacent Regions' CAPRAD Pre-allotments and maintain 80 miles between co-channel assignments (based on county centers). *Please note that the FCC's 2007 reallocation of the 700 MHz Band Plan will create changes in CAPRAD Pre-Allotments in the form of a "relative shift" of all narrowband channel assignments. Region 51 presumed this "relative shift" in maintaining the integrity of all adjacent regions'*

*channel assignments. Should any adjacent region(s) stray from this “relative shift” and choose to make channel assignments that differ from that of the original CAPRAD Pre-allotment criteria, then that region must engineer their channel assignments while maintaining the integrity of this Region 51 Plan.*

- Within each county, obtain 150 KHz spacing between all channels in groups of ten. Maintained the integrity of all adjacent regions.

#### 16.1.2. Channel Spacing

A strict adherence to 250 KHz separation would severely limit the frequency pool availability for reuse throughout the Region. For sorting purposes, the channel spacing was based on a target separation of 250 KHz to achieve separation for antenna design limitations. In instances where 250 KHz separation cannot be achieved with contiguous channel assignments within a county, sufficient numbers of channels are available such that the use of multiple combiners will allow for appropriate separation within one antenna configuration. The co-channel separation was maintained with surrounding jurisdictions for all narrowband channel assignments as assigned in the originating CAPRAD plan. Adjacent channels within a single county can be designed with sufficient physical separation to allow for unobstructed operations from adjacent channel interference. This is due to the fact that the channel assignments for the 700MHz band do not overlap as in some other frequency bands.

The assignments for the Harris County area were partitioned into seven groups to accommodate potential transmit combiner configurations. Within each Harris County grouping, sufficient adjacent channel spacing is obtainable to make workable channel groupings in a typical transmit combiner. The primary impact of the frequency spread are the overall desired per-channel ERP, tower height, and antenna systems gains or losses. Use of more than one combiner may be required for channel spacing within a single group is less than 150 KHz, nonetheless, use of more than one combiner will most likely be required anyway when exceeding ten channels at a single location. The varied highlighting in the right side columns of the tables below indicates estimated combiner grouping.

#### 16.1.3. Edits to Frequency Assignments

Using the CAPRAD frequency assignments as a base template, the Harris County frequency assignments were plotted and recorded. In some cases, those counties with sufficient distance from Harris County were able to maintain most of their existing CAPRAD assignments per 12.5 KHz channel slot. It was noted that some of the original CAPRAD assignments



were less than the desired 80 miles from center to center of counties. These original CAPRAD assignments were not reassigned.

In general, the remaining counties for Region 51 plan were reassigned channels based on frequency availability and normalized loading. A sufficient channel pool exists to accommodate modifications to the existing plan for the reassignment or combination of channels for 25 KHz applications if needed, with limitations.

#### 16.1.4. County Assignments

The columns, in the tables to follow, show the channel assignments for regions 18, 40, 49, 53, and 51 with each row showing the co-channel assignments relative to the primary sort column. In the Region 51 section on the right side of the table, the county listed in bold text under the "Primary Sort Assignment" is the newly reassigned grouping. (The location of this column may vary in accordance with the originating spreadsheet.) The search and sorting criteria was based on the channel separation required for a typical transmit combiner configuration.

The additional shading under the Region 51 columns show those frequencies (channels) that may be workable into a single transmit combiner. Highlighting of the same color indicates frequency use into one combiner. Additional system design will be needed to determine the target ERP and other system design parameters for the final location of the site.

The co-channel CAPRAD assignments for each frequency are listed on the left side of the table. The counties highlighted in yellow are the closest to the Region 51 assignment; however, they are not necessarily less than the desired 80 miles separation of county centers.

#### 16.1.5. Coordination with Adjacent Regions

Frequency reuse is of vital importance to our region. Careful consideration was given to prevent/minimize interference during the resort process. Further, the CAPRAD frequencies along the borders were left in place so as not to disturb frequencies in adjacent regions. However, there may be channel assignments along the region's border that have the potential to be in conflict with adjacent region(s). Therefore, as a standard step in our application approval process, the Chair of Region 51 will forward via both electronic and via hardcopy a copy of all license applications that have proposed sites within 70 miles (113km) of the region's border to the adjacent region(s) and allow a fourteen day (14) period for the adjacent region(s) to raise any objection. If an objection is raised, the regional chairs will work to mitigate the issue. If said mitigation can't be reached, the situation will be handled via the dispute resolution process identified in section 17. If the Chair of Region 51

receives no response within the 14 day period, the application will then move forward in the normal approval process.

## 16.1.6. Harris County-1

Harris County 1									
Adjacent Regions' Original CAPRAD Assignments				Region 51					
Region 49 Central Texas	Region 53 South Texas	Region 40 North Texas	Region 18 Louisiana	Chan	Center Freq	1st Reuse	2nd Reuse		Freq Spread (kHz)
1	Brazos		Cherokee	13	769.08125	<a href="#">Harris County 1</a>	Sabine		
2	Travis	Calhoun	Upshur	53	769.33125	<a href="#">Harris County 1</a>			250
3	Travis	Jackson	Vernon, Red River	93	769.58125	<a href="#">Harris County 1</a>	Nacogdoches		250
4	Travis		Bossier,Evangeline	137	769.85625	<a href="#">Harris County 1</a>			275
5	Travis		Jeff Davis,Bossier	177	770.10625	<a href="#">Harris County 1</a>	Nacogdoches		250
6		Gonzales	Vernon, Caddo	241	770.50625	<a href="#">Harris County 1</a>	Houston		400
7	Leon	Lavaca	Rapides, Vermilion	281	770.75625	<a href="#">Harris County 1</a>	San Augustine		250
8		Guadalupe	Jeff Davis, Sabine	325	771.03125	<a href="#">Harris County 1</a>			275
9	Caldwell		Acadia	345	771.15625	<a href="#">Harris County 1</a>	Angelina		125
10	Burleson	Calh, Guad	Winn	373	771.33125	<a href="#">Harris County 1</a>	Jasper		175
11	Lee	Dewitt	Panola	393	771.45625	<a href="#">Harris County 1</a>			125
12		Calhoun	Winn,Evangeline	413	771.58125	<a href="#">Harris County 1</a>	San Augustine		125
13			Grant,Acadia	441	771.75625	<a href="#">Harris County 1</a>			175
14	Lee		Vernon,Bossier	461	771.88125	<a href="#">Harris County 1</a>			125
15		Calhoun, Gonzales	Beauregard, Red River	489	772.05625	<a href="#">Harris County 1</a>			175
16	Travis	Lavaca	Caddo	509	772.18125	<a href="#">Harris County 1</a>	Trinity		125
17	Burleson		Vernon,Bossier	533	772.33125	<a href="#">Harris County 1</a>			150
18	Leon		Natchitoches	557	772.48125	<a href="#">Harris County 1</a>	Nacogdoches		150
19			Webster,Grant	577	772.60625	<a href="#">Harris County 1</a>	Houston	Newton	125
20	Brazos		Natchitoches	605	772.78125	<a href="#">Harris County 1</a>		Orange	175
21			Calcasieu, Caddo	629	772.93125	<a href="#">Harris County 1</a>			150
22		Vict, Guad	Webster,Rapides	673	773.20625	<a href="#">Harris County 1</a>	Nacogdoches		275
23	Lee		Jeff Davis, DeSoto	717	773.48125	<a href="#">Harris County 1</a>	Angelina		275
24	Limestone	Guadalupe	Winn, Acadia	781	773.88125	<a href="#">Harris County 1</a>	Angelina	Orange	400
25	Bastrop		Natchitoches	821	774.13125	<a href="#">Harris County 1</a>			250
26	Milam, Freestone	Gonzales	Caddo,Acadia	861	774.38125	<a href="#">Harris County 1</a>	Jasper		250
27		Gonzales	Caddo	901	774.63125	<a href="#">Harris County 1</a>	Jasper		250
28			Caddo	941	774.88125	<a href="#">Harris County 1</a>			250

## 16.1.7. Harris County-2

As in the previous Harris County-1 table, channel spacing under 250 KHz may be configured for separate combiner use therefore providing adequate separation.

Harris County 2									
Adjacent Regions' <i>Original</i> CAPRAD Assignments				Region 51					
Region 49 Central Texas	Region 53 South Texas	Region 40 North Texas	Region 18 Louisiana	Chan	Center Freq	1st Reuse	2nd Reuse		Freq Spread (kHz)
1		Navarro, Gregg	Calcasieu, Bossier, Rapides	17	769.10625	Harris County 2			
2	Brazos	Lavaca	Rusk	57	769.35625	Harris County 2			250
3	Leon		Calcasieu, Caddo, Rapides	121	769.75625	Harris County 2			400
4	Robsn, Bast		Cherokee	161	770.00625	Harris County 2	Newton		250
5	Robsn, Bast, Limestone	Victoria	Caddo, Vermilion	201	770.25625	Harris County 2	Angelina		250
6	Robertson	Victoria	Webster, Evangeline	245	770.53125	Harris County 2	Nacogdoches		275
7		Navarro	Caddo, Acadia	289	770.80625	Harris County 2	Tyler		275
8	Freestone		Caddo	329	771.05625	Harris County 2			250
9	Brazos		Anderson	349	771.18125	Harris County 2			125
10	Leon, Bast		Beauregard, Desoto	377	771.35625	Harris County 2			175
11			Webster	397	771.48125	Harris County 2	Nacogdoches		125
12		Cherokee		421	771.63125	Harris County 2	Jasper		150
13	Robsn, Bast	Victoria	Beauregard	445	771.78125	Harris County 2	Shelby		150
14	Brazos	Calh, Guad	Gregg	465	771.90625	Harris County 2			125
15	Limestone		Gregg	493	772.08125	Harris County 2	Sabine		175
16	Madison		Rapides	513	772.20625	Harris County 2	Nacogdoches		125
17	Fayette		Calcasieu	537	772.35625	Harris County 2	Shelby		150
18	Bastrop		Harrison	561	772.50625	Harris County 2	Sabine	Trinity	150
19	Burl, Cald	Goliad	Bossier, Cameron, Vernon	585	772.65625	Harris County 2			150
20	Lee	Refug, Guad	Anderson	609	772.80625	Harris County 2	Sabine		150
21	Milam		Henderso n	637	772.98125	Harris County 2	Angelina		175
22	Travis		Henderso n	677	773.23125	Harris County 2			250
23	Bastrop		Anderson	741	773.63125	Harris County 2			400
24	Brazos	Dewitt	Anderson	785	773.90625	Harris County 2			275
25	Brazos	Guadelup e	Smith	825	774.15625	Harris County 2			250
26	Travis		Smith	865	774.40625	Harris County 2			250
27	Travis	Victoria	Smith	905	774.65625	Harris County 2	Houston		250
28	Limestone, Travis	Victoria	Smith	945	774.90625	Harris County 2	Angelina		250

## 16.1.8. Harris County-3

Harris County 3									
Adjacent Regions' <i>Original</i> CAPRAD Assignments				Region 51					
Region 49 Central Texas	Region 53 South Texas	Region 40 North Texas	Region 18 Louisiana	Chan	Center Freq	1st Reuse	Other Assigned	Other Assigned	Freq Spread (kHz)
1		Vict, Guad	Harrison	41	769.25625	Harris County 3	Tyler		
2	Bastrop, Limestone	Victoria	DeSoto, Allen	81	769.50625	Harris County 3	Tyler		250
3		Smith	Webster	125	769.78125	Harris County 3	Angelina		275
4			Webster	165	770.03125	Harris County 3	Shelby		250
5		Henderson	Sabine	205	770.28125	Harris County 3		Trinity	250
6	Caldwell		Calcasieu	249	770.55625	Harris County 3	Shelby		275
7	Fayette		Rusk	293	770.83125	Harris County 3			275
8	Fayette		Beauregard, Grant	333	771.08125	Harris County 3	Trinity		250
9		Jackson	Webster, Allen	353	771.20625	Harris County 3	Nacogdoches		125
10		Upshur		381	771.38125	Harris County 3	Tyler		175
11		Victoria	Cameron, Natchitoches	401	771.50625	Harris County 3			125
12	Freestone, Travis	Jackson	Harrison	425	771.65625	Harris County 3			150
13		Smith	Webster, Vermilion	449	771.80625	Harris County 3	Houston		150
14	Freestone	Goliad	Marion	469	771.93125	Harris County 3	Angelina		125
15	Milam	Vict, Guad	DeSoto, Allen	497	772.10625	Harris County 3			175
16	Caldwell	Refugio	Harrison	517	772.23125	Harris County 3	Tyler		125
17	Freestone		Gregg	541	772.38125	Harris County 3			150
18	Brazos		Anderson	565	772.53125	Harris County 3		Orange	150
19		Lavaca	Marion	589	772.68125	Harris County 3	Angelina		150
20	Madison		Panola	613	772.83125	Harris County 3	Tyler		150
21		Calhoun	Anderson, Upshur	661	773.13125	Harris County 3	Jasper		300
22	Madison	Gonz, Refug	Navarro	701	773.38125	Harris County 3			250
23		Dewitt	Gregg	745	773.65625	Harris County 3	San Augustine		275
24	Fayette		Gregg	789	773.93125	Harris County 3			275
25			Marion	829	774.18125	Harris County 3	Nacogdoches		250
26	Brazos	Refugio	Webster	869	774.43125	Harris County 3	Nacogdoches		250
27	Brazos		Navarro	909	774.68125	Harris County 3			250

## 16.1.9. Harris County-4

Harris County 4									
Adjacent Regions' <i>Original</i> CAPRAD Assignments				Region 51					
Region 49 Central Texas	Region 53 South Texas	Region 40 North Texas	Region 18 Louisiana	Chan	Center Freq	1st Reuse	Other Assigned	Other Assigned	Freq Spread (kHz)
1		Smith	Natchitoches	45	769.28125	Harris County 4		Orange	
2		Smith		85	769.53125	Harris County 4	San Augustine	Orange	250
3	Brazos	Victoria	DeSoto	129	769.80625	Harris County 4			275
4		Guadalupe	Harrison	169	770.05625	Harris County 4			250
5	Brazos		Gregg	209	770.30625	Harris County 4			250
6	Brazos	Dewitt	Gregg	253	770.58125	Harris County 4	Angelina		275
7	Brazos	Dewitt	Henderson	297	770.85625	Harris County 4			275
8	Travis	Dewitt	Rusk	337	771.10625	Harris County 4			250
9		Victoria	Navarro	361	771.25625	Harris County 4	Shelby	Houston	150
10	Limestone, Travis	Lavaca	Rusk	385	771.40625	Harris County 4			150
11	Milam		Smith	405	771.53125	Harris County 4	Houston		125
12	Madison	Gonzales		429	771.68125	Harris County 4	Angelina		150
13	Limestone			453	771.83125	Harris County 4	Nacogdoches		150
14	Travis	Lavaca	Anderson, Upshur	477	771.98125	Harris County 4	Jasper		150
15	Bastrop		Rusk	501	772.13125	Harris County 4			150
16	Lee	Dewitt	Smith	521	772.25625	Harris County 4	Houston	San Augustine	125
17	Travis	Victoria	Navarro	549	772.43125	Harris County 4		Jasper	175
18	Lee			569	772.55625	Harris County 4			125
19	Milam, Freestone		Upshur	597	772.73125	Harris County 4			175
20		Dewitt	Cherokee	617	772.85625	Harris County 4	Newton		125
21			Panola	665	773.15625	Harris County 4			300
22				709	773.43125	Harris County 4	Houston		275
23		Victoria		753	773.70625	Harris County 4			275
24	Burleson	Victoria		793	773.95625	Harris County 4	Houston	Jasper	250
25		Victoria	Gregg	833	774.20625	Harris County 4			250
26		Lavaca	Gregg	873	774.45625	Harris County 4	Tyler		250
27		Lavaca	Rusk	913	774.70625	Harris County 4			250

## 16.1.10. Harris County-5

Harris County 5										
Adjacent Regions' <i>Original</i> CAPRAD Assignments					Region 51					
	Region 49 Central Texas	Region 53 South Texas	Region 40 North Texas	Region 18 Louisiana	Chan	Center Freq	1st Reuse	Other Assigned	Other Assgnd	Freq Spread (kHz)
1			Smith	Natchitoches	47	769.29375	Harris County 5			
2			Smith		87	769.54375	Harris County 5	Shelby		250
3	Brazos	Victoria		DeSoto	131	769.81875	Harris County 5		Orange	275
4		Guadalupe	Harrison	Calcasieu, Winn	171	770.06875	Harris County 5			250
5	Brazos		Gregg	Calcasieu, Red River	211	770.31875	Harris County 5			250
6	Brazos	Dewitt	Gregg	Natchitoches	255	770.59375	Harris County 5			275
7	Brazos	Dewitt	Henderson	Calcasieu, Bossier	299	770.86875	Harris County 5			275
8	Travis	Dewitt	Rusk	Evangeline	339	771.11875	Harris County 5			250
9		Victoria	Navarro	Bienville, Rapides	363	771.26875	Harris County 5	Nacogdoches	Orange	150
10	Limestone, Travis	Lavaca	Rusk	Bossier	387	771.41875	Harris County 5			150
11	Milam		Smith	Allen	407	771.54375	Harris County 5			125
12	Madison	Gonzales		DeSoto	431	771.69375	Harris County 5			150
13	Limestone			Winn, Evangeline	455	771.84375	Harris County 5			150
14	Travis	Lavaca	Anderson, Upshur	Caddo, Rapides	479	771.99375	Harris County 5			150
15	Bastrop		Rusk		503	772.14375	Harris County 5			150
16	Lee	Dewitt	Smith		523	772.26875	Harris County 5			125
17	Travis	Victoria	Navarro	Winn, Evangeline	551	772.44375	Harris County 5			175
18	Lee			DeSoto	571	772.56875	Harris County 5			125
19	Milam, Freestone		Upshur	Sabine	599	772.74375	Harris County 5			175
20		Dewitt	Cherokee		619	772.86875	Harris County 5			125
21			Panola	Vernon	667	773.16875	Harris County 5			300
22				Calcasieu, Bossier	711	773.44375	Harris County 5	Nacogdoches		275
23		Victoria		Caddo	755	773.71875	Harris County 5			275
24	Burleson	Victoria		Caddo	795	773.96875	Harris County 5			250
25		Victoria	Gregg	Beauregard	835	774.21875	Harris County 5			250
26		Lavaca	Gregg	Natchitoches	875	774.46875	Harris County 5			250
27		Lavaca	Rusk	Beauregard	915	774.71875	Harris County 5			250

## 16.1.11. Harris County-6

Harris County 6										
Adjacent Regions' Original CAPRAD Assignments					Region 51					
	Region 49 Central Texas	Region 53 South Texas	Region 40 North Texas	Region 18 Louisiana	Chan	Center Freq	1st Reuse	Other Assigned	Other Assigned	Freq Spread (kHz)
1	Fayette, Freestone			Beauregard, Caddo	49	769.30625	Harris County 6	Angelina		
2	Fayette, Freestone		Marion	Grant	89	769.55625	Harris County 6			250
3	Fayette			Vernon	133	769.83125	Harris County 6	Nacogdoches		275
4	Burleson	Dewitt	Smith	Rapides	173	770.08125	Harris County 6	Houston	Sabine	250
5	Fayette			Rapides	213	770.33125	Harris County 6	Shelby		250
6	Travis	Calhoun	Henderson	Bossier	257	770.60625	Harris County 6		Orange	275
7	Leon, Bast	Victoria	Panola	Bienville, Rapides	321	771.00625	Harris County 6		Orange	400
8	Milam			Vernon, Bossier	341	771.13125	Harris County 6			125
9	Robertson	Gonzales	Smith	Vermilion	365	771.28125	Harris County 6	Shelby		150
10	Brazos		Henderson	Grant, Acadia	389	771.43125	Harris County 6	Angelina		150
11			Marion	Red River	409	771.55625	Harris County 6	Newton		125
12	Leon, Caldwell	Refugio	Upshur	Caddo	437	771.73125	Harris County 6		Orange	175
13		Dewitt	Panola	Calcasieu	457	771.85625	Harris County 6			125
14		Jackson	Smith	Calcasieu, Bossier, Grant	481	772.00625	Harris County 6	Angelina		150
15	Brazos	Goliad	Anderson	Natchitoches, Acadia	505	772.15625	Harris County 6			150
16	Robertson		Panola	Bienville	525	772.28125	Harris County 6	Newton		125
17	Milam	Gonzales	Upshur	Caddo, Vermilion	553	772.45625	Harris County 6			175
18	Robertson		Smith	Jeff Davis	573	772.58125	Harris County 6	San Augustine		125
19	Bastrop			Beauregard	601	772.75625	Harris County 6	Nacogdoches		175
20	Burl, Caldwell	Victoria	Smith	Vernon, Webster	625	772.90625	Harris County 6			150
21	Brazos		Smith	Calcasieu	669	773.18125	Harris County 6			275
22	Brazos, Caldwell	Victoria	Harrison	Rapides	713	773.45625	Harris County 6			275
23	Milam		Smith	Cameron, Rapides	757	773.73125	Harris County 6	Sabine		275
24	Travis		Henderson	Webster, Rapides	797	773.98125	Harris County 6	Shelby		250
25	Fayette, Madison		Henderson	Bossier	837	774.23125	Harris County 6	Angelina		250
26	Madison		Cherokee	Bossier, Allen	877	774.48125	Harris County 6	Sabine		250
27		Calhoun, Guadalupe	Henderson	Bossier, Grant	917	774.73125	Harris County 6	Sabine	Trinity	250



## 16.1.12. Harris County-7

The Harris County-7 group is the remaining central assignment of frequencies that may be available for other areas if the 1 thru 6 grouping is sufficient for the central area of Region 51.

Harris County 7										
Adjacent Regions' <i>Original</i> CAPRAD Assignments					Region 51					
	Region 49 Central Texas	Region 53 South Texas	Region 40 North Texas	Region 18 Louisiana	Chan	Center Freq	1st Reuse	Other Assigned	Other Asgnd	Freq Spread (kHz)
1		Vict, Guad	Harrison		43	769.26875	Harris County 7			
2	Brazos	Lavaca	Rusk	Calcasieu, Bossier, Rapides	59	769.36875	Harris County 7			100
3	Fayette, Freestone		Marion	Grant	91	769.56875	Harris County 7			200
4	Burleson	Dewitt	Smith	Rapides	175	770.09375	Harris County 7	Shelby		525
5	Milam			Vernon, Bossier	343	771.14375	Harris County 7	Nacogdoches		1050
6	Burleson	Calh, Guad	Cherokee	Winn	375	771.34375	Harris County 7			200
7	Brazos		Henderson	Grant, Acadia	391	771.44375	Harris County 7		Polk	100
8	Robsn, Bast	Victoria		Beauregard	447	771.79375	Harris County 7	Nacogdoches		350
9	Madison			Rapides	515	772.21875	Harris County 7			425
10	Lee	Refug, Guad	Anderson	Acadia	611	772.81875	Harris County 7			600
11	Burl, Cald	Victoria	Smith	Vernon, Webster	627	772.91875	Harris County 7	Trinity		100
12		Dewitt	Gregg	Red River, Evangeline	747	773.66875	Harris County 7		San Jacinto	750
13	Brazos	Dewitt	Anderson	Vernon, Bossier	787	773.91875	Harris County 7			250
14	Fayette, Madison		Henderson	Bossier	839	774.24375	Harris County 7			325
15	Madison		Cherokee	Bossier, Allen	879	774.49375	Harris County 7			250

# 16.1.13. Fort Bend County

	Fort Bend County									
	Adjacent Regions' <i>Original</i> CAPRAD Assignments				Region 51					
	Region 49 Central Texas	Region 53 South Texas	Region 40 North Texas	Region 18 Louisiana	Chan	Center Freq	1st Reuse	Other Assigned	Other Assgnd	Freq Spread (kHz)
1			Navarro, Gregg	Calcasieu, Bossier,Rapides	19	769.11875	Fort Bend	San Jacinto		
2	Travis	Calhoun	Upshur	Sabine	55	769.34375	Fort Bend		Walker	225
3	Leon			Calcasieu, Caddo,Rapides	123	769.76875	Fort Bend			425
4	Robsn, Bast		Cherokee	Caddo,Grant	163	770.01875	Fort Bend		Hardin	250
5			Henderson	Sabine	207	770.29375	Fort Bend		Hardin	275
6		Gonzales	Smith	Vernon, Caddo	243	770.51875	Fort Bend		Hardin	225
7			Navarro	Caddo,Acadia	291	770.81875	Fort Bend		Hardin	300
8		Guadalupe	Smith	Jeff Davis, Sabine	327	771.04375	Fort Bend			225
9	Robertson	Gonzales	Smith	Vermilion	367	771.29375	Fort Bend		Hardin	250
10	Lee	Dewitt	Panola	Vernon	395	771.46875	Fort Bend		Hardin	175
11			Cherokee		423	771.64375	Fort Bend		Hardin	175
12			Smith	Webster, Vermilion	451	771.81875	Fort Bend		Hardin	175
13		Calhoun, Gonzales	Henderson	Beauregard, Red River	491	772.06875	Fort Bend		Walker	250
14	Caldwell	Refugio	Harrison	Jeff Davis	519	772.24375	Fort Bend		Hardin	175
15	Milam	Gonzales	Upshur	Caddo, Vermilion	555	772.46875	Fort Bend		Hardin	225
16	Burl, Cald	Goliad		Bossier, Cameron, Vernon	587	772.66875	Fort Bend	Nacogdoches		200
17	Madison		Panola	Bienville,Rapides	615	772.84375	Fort Bend			175
18		Calhoun	Anderson, Upshur	Bienville	663	773.14375	Fort Bend			300
19	Madison	Gonz, Refug	Navarro	Beauregard, Bienville	703	773.39375	Fort Bend			250
20	Bastrop		Anderson	Vernon, Vermilion	743	773.64375	Fort Bend			250
21	Limestone	Guadalupe	Harrison	Winn, Acadia	783	773.89375	Fort Bend		Polk	250
22	Bastrop		Harrison, Navarro	Natchitoches	823	774.14375	Fort Bend		Walker	250
23	Milam,Freeston e	Gonzales		Caddo,Acadia	863	774.39375	Fort Bend			250
24		Gonzales		Caddo	903	774.64375	Fort Bend		Walker	250
25				Caddo	943	774.89375	Fort Bend		Walker	250

## 16.1.14. Galveston County

Galveston County										
Adjacent Regions' <i>Original</i> CAPRAD Assignments					Region 51					
	Region 49 Central Texas	Region 53 South Texas	Region 40 North Texas	Region 18 Louisiana	Chan	Center Freq	1st Reuse	Other Assigned	Other Assgnd	Freq Spread (kHz)
1	Fayette, Freestone			Beauregard, Caddo	51	769.31875	Galveston		Polk	
2	Washington	Guadalupe	Anderson, Harrison	Jeff Davis, Winn	97	769.60625	Galveston		Polk	287.5
3	Grimes, Travis	Jackson	Cherokee	Bossier, Acadia	217	770.35625	Galveston			750
4	Leon	Lavaca	Harrison	Rapides, Vermilion	283	770.76875	Galveston			412.5
5	Fayette			Beauregard, Grant	335	771.09375	Galveston	Shelby	Walker	325
6	Grimes	Goliad		Calcasieu, Caddo	369	771.30625	Galveston			212.5
7		Victoria		Cameron, Natchitoches	403	771.51875	Galveston	Nacogdoches	Walker	212.5
8	Washington		Rusk, Navarro	Rapides	433	771.70625	Galveston		Polk	187.5
9	Lee		Cherokee	Vernon, Bossier	463	771.89375	Galveston			187.5
10	Brazos	Goliad	Anderson	Natchitoches, Acadia	507	772.16875	Galveston			275
11	Burleson			Vernon, Bossier	535	772.34375	Galveston		Polk	175
12	Robertson		Smith	Jeff Davis	575	772.59375	Galveston		Polk	250
13	Brazos		Gregg	Natchitoches	607	772.79375	Galveston		Polk	200
14	Wash, Leon, Travis		Rusk	Winn	635	772.96875	Galveston			175
15	Washington		Gregg	Evangeline	707	773.41875	Galveston		Orange	450
16	Grimes		Cherokee	Calcasieu, Sabine, Webster	749	773.68125	Galveston	Colorado		262.5
17	Fayette		Gregg	Calcasieu	791	773.94375	Galveston		Walker	262.5

## 16.1.15. Montgomery County

The close proximity of some of the Montgomery County assignments will require the use of multiple combiners which would be of necessity, nevertheless, due the quantity of channels involved.

Montgomery County										
Adjacent Regions' <i>Original</i> CAPRAD Assignments					Region 51					
	Region 49 Central Texas	Region 53 South Texas	Region 40 North Texas	Region 18 Louisiana	Chan	Center Freq	1st Reuse	Other Assigned	Other Assgnd	Freq Spread (kHz)
1	Travis	Jackson		Vernon, Red River	95	769.59375	Montgomery	Matagorda		
2	Travis		Anderson	Bossier, Evangeline	139	769.86875	Montgomery			275
3	Travis			Jeff Davis, Bossier	179	770.11875	Montgomery		Orange	250
4	Caldwell			Calcasieu	251	770.56875	Montgomery	Nacogdoches		450
5	Freestone			Caddo	331	771.06875	Montgomery	Wharton		500
6				Webster	399	771.49375	Montgomery			425
7	Freestone, Travis	Jackson	Harrison	Jeff Davis	427	771.66875	Montgomery			175
8		Dewitt	Panola	Calcasieu	459	771.86875	Montgomery	Matagorda		200
9		Jackson	Smith	Calcasieu, Bossier, Grant	483	772.01875	Montgomery	Matagorda		150
10	Limestone		Gregg		495	772.09375	Montgomery			75
11	Travis	Lavaca	Upshur	Caddo	511	772.19375	Montgomery	Matagorda	Orange	100
12	Freestone		Gregg	Red River	543	772.39375	Montgomery	Wharton		200
13	Bastrop		Harrison	Acadia	563	772.51875	Montgomery	Matagorda		125
14				Webster, Grant	579	772.61875	Montgomery			100
15		Lavaca	Marion		591	772.69375	Montgomery			75
16	Milam		Henderson	Bossier, Vermilion	639	772.99375	Montgomery	Wharton		300
17		Vict, Guad		Webster, Rapides	675	773.21875	Montgomery			225
18	Travis		Henderson	Jeff Davis, Caddo	679	773.24375	Montgomery			25
19	Milam		Smith	Cameron, Rapides	759	773.74375	Montgomery			500
20	Travis		Henderson	Webster, Rapides	799	773.99375	Montgomery			250
21			Marion	Red River	831	774.19375	Montgomery		Orange	200
22	Travis		Smith	Calcasieu, Rapides	867	774.41875	Montgomery	Shelby		225
23	Travis	Victoria	Smith	Calcasieu, Rapides	907	774.66875	Montgomery	Shelby		250
24		Calh, Guad	Henderson	Bossier, Grant	919	774.74375	Montgomery		Orange	75
25	Limestone, Travis	Victoria	Smith	Calcasieu, Rapides	947	774.91875	Montgomery	Shelby		175

## 16.1.16. Brazoria County

Brazoria County									
Adjacent Regions' <i>Original</i> CAPRAD Assignments				Region 51					
Region 49 Central Texas	Region 53 South Texas	Region 40 North Texas	Region 18 Louisiana	Chan	Center Freq	1st Reuse	Other Assigned	Other Assigned	Freq Spread (kHz)
1	Brazos	Cherokee		15	769.09375		Brazoria	Tyler	
2	Bastrop,Limestone	Victoria	DeSoto,Allen	83	769.51875		Brazoria	San Jacinto	425
3	Robsn, Bast, Limestone	Victoria	Caddo, Vermilion	203	770.26875		Brazoria	San Jacinto	750
4	Washington	Smith	Sabine	287	770.79375	Jefferson	Brazoria		525
5	Leon, Bast	Victoria	Bienville,Rapides	323	771.01875		Brazoria		225
6	Brazos	Anderson	Natchitoches	351	771.19375		Brazoria		175
7	Washington	Harrison		359	771.24375	Jefferson	Brazoria		50
8	Leon, Caldwl	Refugio	Caddo	439	771.74375		Brazoria		500
9	Freestone	Goliad	Marion	471	771.94375		Brazoria	San Jacinto	200
10	Wash, Leon	Panola		485	772.03125	Jefferson	Brazoria		87.5
11	Milam	Vict, Guad	DeSoto,Allen	499	772.11875		Brazoria	San Jacinto	87.5
12	Robertson	Panola	Bienville	527	772.29375		Brazoria	San Jacinto	175
13	Leon		Natchitoches	559	772.49375		Brazoria		200
14	Brazos	Anderson	Bienville,Rapides	567	772.54375	Jefferson	Brazoria		50
15	Washington, Travis	Calhoun	Rusk	595	772.71875	Jefferson	Brazoria		175
16	Grimes,Limestone	Harrison	Evangeline	621	772.88125	Jefferson	Brazoria	San Augustine	162.5
17	Grimes,Limestone	Harrison	Evangeline	623	772.89375	Jefferson	Brazoria		12.5
18	Brazos	Smith	Calcasieu	671	773.19375		Brazoria	Polk	300
19	Washington	Gregg	Evangeline	705	773.40625	Jefferson	Brazoria		212.5
20	Brazos, Cald	Victoria	Rapides	715	773.46875		Brazoria		62.5
21	Brazos	Guadalupe	Smith	827	774.16875	Jefferson	Brazoria		700
22	Brazos	Refugio	Webster	871	774.44375	Jefferson	Brazoria		275

## 16.1.17. Austin County

Austin County									
Adjacent Regions' <i>Original</i> CAPRAD Assignments				Region 51					
Region 49 Central Texas	Region 53 South Texas	Region 40 North Texas	Region 18 Louisiana	Chan	Center Freq	1st Reuse	Other Assigned	Other Assigned	Freq Spread (kHz)
1	Travis	Calhoun	Henderson	Bossier	259	770.61875	Jefferson	Austin	
2		Calhoun	Anderson,	Winn,Evangeline	415	771.59375	Jefferson	Austin	975
3		Henderson	Grant,Acadia		443	771.76875	Jefferson	Austin	175

### 16.1.18. Colorado County

Colorado County										
Adjacent Regions' <i>Original</i> CAPRAD Assignments					Region 51					
	Region 49 Central Texas	Region 53 South Texas	Region 40 North Texas	Region 18 Louisiana	Chan	Center Freq	1st Reuse	Other Assigned	Other Assigned	Freq Spread (kHz)
1	Fayette			Vernon	135	769.84375	Jefferson	Colorado		
2	Grimes		Cherokee	Calcasieu, Sabine, Webster	749	773.68125	Galveston	Colorado		3837.5
3	Brazos		Navarro	DeSoto, Acadia	911	774.69375	Jefferson	Colorado		1012.5

### 16.1.19. Liberty County

Liberty County										
Adjacent Regions' <i>Original</i> CAPRAD Assignments					Region 51					
	Region 49 Central Texas	Region 53 South Texas	Region 40 North Texas	Region 18 Louisiana	Chan	Center Freq	1st Reuse	Other Assigned	Other Assigned	Freq Spread (kHz)
1	Washington	Guadalupe	Anderson, Harrison	Jeff Davis, Winn	99	769.61875	Liberty	Wharton		
2	Washington		Smith	Sabine	285	770.78125	Liberty			1162.5
3	Caldwell		Gregg	Acadia	347	771.16875	Liberty			387.5
4	Leon, Bast			Beauregard, Desoto	379	771.36875	Liberty			200
5	Washington		Rusk, Navarro	Rapides	435	771.71875	Liberty			350
6	Brazos	Calh, Guad	Gregg	Jeff Davis	467	771.91875	Liberty			200
7	Washington	Guadalupe	Cherokee	Cameron, Sabine	545	772.40625	Liberty	Wharton		487.5
8	Washington, Travis	Calhoun	Rusk	Red River, Allen	593	772.70625	Liberty			300

### 16.1.20. Matagorda County

Matagorda County										
Adjacent Regions' <i>Original</i> CAPRAD Assignments					Region 51					
	Region 49 Central Texas	Region 53 South Texas	Region 40 North Texas	Region 18 Louisiana	Chan	Center Freq	1st Reuse	Other Assigned	Other Assigned	Freq Spread (kHz)
1	Travis	Jackson		Vernon, Red River	95	769.59375	Montgomery	Matagorda		
2		Dewitt	Panola	Calcasieu	459	771.86875	Montgomery	Matagorda		2275
3		Jackson	Smith	Calcasieu, Bossier, Grant	483	772.01875	Montgomery	Matagorda		150
4	Travis	Lavaca	Upshur	Caddo	511	772.19375	Montgomery	Matagorda	Orange	175
5	Bastrop		Harrison	Acadia	563	772.51875	Montgomery	Matagorda		325

### 16.1.21. Waller County

Waller County									
Adjacent Regions' <i>Original</i> CAPRAD Assignments				Region 51					
Region 49 Central Texas	Region 53 South Texas	Region 40 North Texas	Region 18 Louisiana	Chan	Center Freq	1st Reuse	Other Assigned	Other Assigned	Freq Spread (kHz)
1			Webster	167	770.04375	Waller	Nacogdoches		
2		Upshur		383	771.39375	Waller	Shelby		1350
3		Marion	Red River	411	771.56875	Waller			175
4		Navarro	Calcasieu, Caddo	631	772.94375	Waller			1375

### 16.1.22. Wharton County

Wharton County									
Adjacent Regions' <i>Original</i> CAPRAD Assignments				Region 51					
Region 49 Central Texas	Region 53 South Texas	Region 40 North Texas	Region 18 Louisiana	Chan	Center Freq	1st Reuse	Other Assigned	Other Assigned	Freq Spread (kHz)
1	Washington	Guadalupe	Anderson, Harrison	99	769.61875	Liberty	Wharton		
2	Freestone		Caddo	331	771.06875	Montgomery	Wharton		1450
3	Freestone	Gregg	Red River	543	772.39375	Montgomery	Wharton		1325
4			Webster, Grant	579	772.61875	Montgomery	Wharton		225
5	Milam	Henderson	Bossier, Vermillion	639	772.99375	Montgomery	Wharton		375

### 16.1.23. Jefferson County

The Jefferson County group will also require a minimum of three combiners to accommodate the close proximity of channels.

Jefferson County									
Adjacent Regions' Original CAPRAD Assignments				Region 51					
Region 49 Central Texas	Region 53 South Texas	Region 40 North Texas	Region 18 Louisiana	Chan	Center Freq	1st Reuse	Other Assigned	Other Assigned	Freq Spread (kHz)
1	Fayette		Vernon	135	769.84375	Jefferson	Colorado		
2	Grimes, Travis	Jackson	Cherokee	219	770.36875	Jefferson			525
3	Travis	Calhoun	Henderson	259	770.61875	Jefferson	Austin		250
4	Washington		Smith	287	770.79375	Jefferson	Brazoria		175
5	Washington		Harrison	359	771.24375	Jefferson	Brazoria		450
6		Calhoun	Anderson,	415	771.59375	Jefferson	Austin		350
7			Henderson	443	771.76875	Jefferson	Austin		175
8	Wash, Leon		Panola	485	772.03125	Jefferson	Brazoria		262.5
9	Grimes	Jackson	Henderson	529	772.30625	Jefferson	Angelina		275
10	Grimes	Jackson	Henderson	531	772.31875	Jefferson			12.5
11	Brazos		Anderson	567	772.54375	Jefferson	Brazoria		225
12	Grimes,Limestone	Jackson		581	772.63125	Jefferson	Shelby		87.5
13	Grimes,Limestone	Jackson		583	772.64375	Jefferson			12.5
14	Washington, Travis	Calhoun	Rusk	595	772.71875	Jefferson	Brazoria		75
15	Grimes,Limestone		Harrison	621	772.88125	Jefferson	Brazoria	San Augustine	162.5
16	Grimes,Limestone		Harrison	623	772.89375	Jefferson	Brazoria		12.5
17	Washington		Gregg	705	773.40625	Jefferson	Brazoria		512.5
18	Brazos	Guadalupe	Smith	827	774.16875	Jefferson	Brazoria		762.5
19	Brazos	Refugio		871	774.44375	Jefferson	Brazoria		275
20	Brazos		Navarro	911	774.69375	Jefferson	Colorado		250



### 16.1.24. Chambers County

Chambers County									
Adjacent Regions' <i>Original</i> CAPRAD Assignments				Region 51					
Region 49 Central Texas	Region 53 South Texas	Region 40 North Texas	Region 18 Louisiana	Chan	Center Freq	1st Reuse	Other Assigned	Other Assigned	Freq Spread (kHz)
1	Washington		Harrison	357	771.23125	Chambers			
2	Wash, Leon		Panola	487	772.04375	Chambers			812.5
3	Wash, Leon, Travis		Rusk	633	772.95625	Chambers			912.5

### 16.1.25. Angelina County

Angelina County									
Adjacent Regions' <i>Original</i> CAPRAD Assignments				Region 51					
Region 49 Central Texas	Region 53 South Texas	Region 40 North Texas	Region 18 Louisiana	Chan	Center Freq	1st Reuse	Other Assigned	Other Assigned	Freq Spread (kHz)
1	Fayette, Freestone		Beauregard, Caddo	49	769.30625	Harris County 6	Angelina		
2		Smith	Webster	125	769.78125	Harris County 3	Angelina		475
3	Robsn, Bast, Limestone	Victoria	Caddo, Vermilion	201	770.25625	Harris County 2	Angelina		475
4	Brazos	Dewitt	Gregg	253	770.58125	Harris County 4	Angelina		325
5	Caldwell		Acadia	345	771.15625	Harris County 1	Angelina		575
6	Brazos		Henderson	389	771.43125	Harris County 6	Angelina		275
7	Madison	Gonzales	DeSoto	429	771.68125	Harris County 4	Angelina		250
8	Freestone	Goliad	Marion	469	771.93125	Harris County 3	Angelina		250
9		Jackson	Smith	481	772.00625	Harris County 6	Angelina		75
10	Grimes	Jackson	Henderson	529	772.30625	Jefferson	Angelina		300
11		Lavaca	Marion	589	772.68125	Harris County 3	Angelina		375
12	Milam		Henderson	637	772.98125	Harris County 2	Angelina		300
13	Lee		Smith	717	773.48125	Harris County 1	Angelina		500
14	Limestone	Guadalupe	Harrison	781	773.88125	Harris County 1	Angelina	Orange	400
15	Fayette, Madison		Henderson	837	774.23125	Harris County 6	Angelina		350
16	Limestone, Travis	Victoria	Smith	945	774.90625	Harris County 2	Angelina		675

## 16.1.26. Hardin County

Hardin County										
Adjacent Regions' <i>Original</i> CAPRAD Assignments					Region 51					
	Region 49 Central Texas	Region 53 South Texas	Region 40 North Texas	Region 18 Louisiana	Chan	Center Freq	1st Reuse	Other Assigned	Other Assigned	Freq Spread (kHz)
1	Robsn, Bast		Cherokee	Caddo, Grant	163	770.01875	Fort Bend		Hardin	
2			Henderson	Sabine	207	770.29375	Fort Bend		Hardin	275
3		Gonzales	Smith	Vernon, Caddo	243	770.51875	Fort Bend		Hardin	225
4			Navarro	Caddo, Acadia	291	770.81875	Fort Bend		Hardin	300
5	Robertson	Gonzales	Smith	Vermilion	367	771.29375	Fort Bend		Hardin	475
6	Lee	Dewitt	Panola	Vernon	395	771.46875	Fort Bend		Hardin	175
7			Cherokee		423	771.64375	Fort Bend		Hardin	175
8			Smith	Webster, Vermilion	451	771.81875	Fort Bend		Hardin	175
9	Caldwell	Refugio	Harrison	Jeff Davis	519	772.24375	Fort Bend		Hardin	425
10	Milam	Gonzales	Upshur	Caddo, Vermilion	555	772.46875	Fort Bend		Hardin	225

## 16.1.27. Houston County

Houston County										
Adjacent Regions' <i>Original</i> CAPRAD Assignments					Region 51					
	Region 49 Central Texas	Region 53 South Texas	Region 40 North Texas	Region 18 Louisiana	Chan	Center Freq	1st Reuse	Other Assigned	Other Assigned	Freq Spread (kHz)
1	Burleson	Dewitt	Smith	Rapides	173	770.08125	Harris County 6	Houston	Sabine	
2		Gonzales	Smith	Vernon, Caddo	241	770.50625	Harris County 1	Houston		425
3		Victoria	Navarro	Bienville, Rapides	361	771.25625	Harris County 4	Shelby	Houston	750
4	Milam		Smith	Allen	405	771.53125	Harris County 4	Houston		275
5			Smith	Webster, Vermilion	449	771.80625	Harris County 3	Houston		275
6	Lee	Dewitt	Smith		521	772.25625	Harris County 4	Houston	San Augustine	450
7				Webster, Grant	577	772.60625	Harris County 1	Houston	Newton	350
8				Calcasieu, Bossier	709	773.43125	Harris County 4	Houston		825
9	Burleson	Victoria		Caddo	793	773.95625	Harris County 4	Houston	Jasper	525
10	Travis	Victoria	Smith	Calcasieu, Rapides	905	774.65625	Harris County 2	Houston		700

## 16.1.28. Jasper County

Jasper County									
Adjacent Regions' <i>Original</i> CAPRAD Assignments				Region 51					
	Region 49 Central Texas	Region 53 South Texas	Region 40 North Texas	Region 18 Louisiana	Chan	Center Freq	1st Reuse	Other Assigned	Freq Spread (kHz)
1	Burleson	Calh, Guad	Cherokee	Winn	373	771.33125	Harris County 1	Jasper	
2			Cherokee		421	771.63125	Harris County 2	Jasper	300
3	Travis	Lavaca	Anderson, Upshur	Caddo, Rapides	477	771.98125	Harris County 4	Jasper	350
4	Travis	Victoria	Navarro	Winn, Evangeline	549	772.43125	Harris County 4	Jasper	450
5		Calhoun	Anderson, Upshur	Bienville	661	773.13125	Harris County 3	Jasper	700
6	Burleson	Victoria		Caddo	793	773.95625	Harris County 4	Houston	825
7	Milam, Freestone	Gonzales		Caddo, Acadia	861	774.38125	Harris County 1	Jasper	425
8		Gonzales		Caddo	901	774.63125	Harris County 1	Jasper	250

## 16.1.29. Nacogdoches

Nacogdoches County										
Adjacent Regions' <i>Original</i> CAPRAD Assignments				Region 51						
Region 49 Central Texas	Region 53 South Texas	Region 40 North Texas	Region 18 Louisiana	Chan	Center Freq	1st Reuse	Other Assigned	Other Assigned	Freq Spread (kHz)	
1	Travis	Jackson	Vernon, Red River	93	769.58125	Harris County 1	Nacogdoches			
2	Fayette		Vernon	133	769.83125	Harris County 6	Nacogdoches		250	
3			Webster	167	770.04375	Waller	Nacogdoches		212.5	
4	Travis		Jeff Davis, Bossier	177	770.10625	Harris County 1	Nacogdoches		62.5	
5	Fayette		Rapides	215	770.34375		Nacogdoches	Walker	237.5	
6	Robertson	Victoria	Webster, Evangeline	245	770.53125	Harris County 2	Nacogdoches		187.5	
7	Caldwell		Calcasieu	251	770.56875	Montgomery	Nacogdoches		37.5	
8	Milam		Vernon, Bossier	343	771.14375	Harris County 7	Nacogdoches		575	
9		Jackson	Webster, Allen	353	771.20625	Harris County 3	Nacogdoches		62.5	
10		Victoria	Navarro	363	771.26875	Harris County 5	Nacogdoches	Orange	62.5	
11			Webster	397	771.48125	Harris County 2	Nacogdoches		212.5	
12		Victoria	Cameron, Natchitoches	403	771.51875	Galveston	Nacogdoches	Walker	37.5	
13	Robson, Bast	Victoria	Beauregard	447	771.79375	Harris County 7	Nacogdoches		275	
14	Limestone		Winn, Evangeline	453	771.83125	Harris County 4	Nacogdoches		37.5	
15	Madison		Rapides	513	772.20625	Harris County 2	Nacogdoches		375	
16	Leon		Natchitoches	557	772.48125	Harris County 1	Nacogdoches		275	
17	Burl, Cald	Goliad	Bossier, Cameron, Vernon	587	772.66875	Fort Bend	Nacogdoches		187.5	
18	Bastrop		Beauregard	601	772.75625	Harris County 6	Nacogdoches		87.5	
19		Vict, Guad	Webster, Rapides	673	773.20625	Harris County 1	Nacogdoches		450	
20			Calcasieu, Bossier	711	773.44375	Harris County 5	Nacogdoches		237.5	
21		Marion	Red River	829	774.18125	Harris County 3	Nacogdoches		737.5	
22	Brazos	Refugio	Webster	869	774.43125	Harris County 3	Nacogdoches		250	

### 16.1.30. Newton

Newton County										
Adjacent Regions' Original CAPRAD Assignments					Region 51					
	Region 49 Central Texas	Region 53 South Texas	Region 40 North Texas	Region 18 Louisiana	Chan	Center Freq	1st Reuse	Other Assigned	Other Assigned	Freq Spread (kHz)
1	Robsn, Bast		Cherokee	Caddo, Grant	161	770.00625	Harris County 2	Newton		
2			Marion	Red River	409	771.55625	Harris County 6	Newton		1550
3	Robertson		Panola	Bienville	525	772.28125	Harris County 6	Newton		725
4				Webster, Grant	577	772.60625	Harris County 1	Houston	Newton	325
5		Dewitt	Cherokee		617	772.85625	Harris County 4	Newton		250

### 16.1.31. Polk County

Polk County										
Adjacent Regions' Original CAPRAD Assignments					Region 51					
	Region 49 Central Texas	Region 53 South Texas	Region 40 North Texas	Region 18 Louisiana	Chan	Center Freq	1st Reuse	Other Assigned	Other Assigned	Freq Spread (kHz)
1	Fayette, Freestone			Beauregard, Caddo	51	769.31875	Galveston		Polk	
2	Washington	Guadalupe	Anderson, Harrison	Jeff Davis, Winn	97	769.60625	Galveston		Polk	287.5
3	Robertson	Victoria		Webster, Evangeline	247	770.54375			Polk	937.5
4	Brazos		Henderson	Grant, Acadia	391	771.44375	Harris County 7		Polk	900
5	Washington		Rusk, Navarro	Rapides	433	771.70625	Galveston		Polk	262.5
6	Washington		Rusk	Cameron	475	771.96875			Polk	262.5
7	Burleson			Vernon, Bossier	535	772.34375	Galveston		Polk	375
8	Robertson		Smith	Jeff Davis	575	772.59375	Galveston		Polk	250
9	Brazos		Gregg	Natchitoches	607	772.79375	Galveston		Polk	200
10	Brazos		Smith	Calcasieu	671	773.19375		Brazoria	Polk	400
11	Limestone	Guadalupe	Harrison	Winn, Acadia	783	773.89375	Fort Bend		Polk	700

### 16.1.32. Sabine County

Sabine County										
Adjacent Regions' <i>Original</i> CAPRAD Assignments					Region 51					
	Region 49 Central Texas	Region 53 South Texas	Region 40 North Texas	Region 18 Louisiana	Chan	Center Freq	1st Reuse	Other Assigned	Other Assigned	Freq Spread (kHz)
1	Brazos		Cherokee		13	769.08125	Harris County 1	Sabine		
2	Burleson	Dewitt	Smith	Rapides	173	770.08125	Harris County 6	Houston	Sabine	1000
3	Limestone		Gregg		493	772.08125	Harris County 2	Sabine		2000
4	Bastrop		Harrison	Acadia	561	772.50625	Harris County 2	Sabine	Trinity	425
5	Lee	Refug, Guad	Anderson	Acadia	609	772.80625	Harris County 2	Sabine		300
6	Milam		Smith	Cameron,Rapides	757	773.73125	Harris County 6	Sabine		925
7	Madison		Cherokee	Bossier,Allen	877	774.48125	Harris County 6	Sabine		750
8		Calh, Guad	Henderson	Bossier,Grant	917	774.73125	Harris County 6	Sabine	Trinity	250

### 16.1.33. San Augustine County

San Augustine County										
Adjacent Regions' <i>Original</i> CAPRAD Assignments					Region 51					
	Region 49 Central Texas	Region 53 South Texas	Region 40 North Texas	Region 18 Louisiana	Chan	Center Freq	1st Reuse	Other Assigned	Other Assigned	Freq Spread (kHz)
1			Smith		85	769.53125	Harris County 4	San Augustine	Orange	
2	Leon	Lavaca	Harrison	Rapides, Vermillion	281	770.75625	Harris County 1	San Augustine		1225
3		Calhoun	Anderson,	Winn,Evangeline	413	771.58125	Harris County 1	San Augustine		825
4	Lee	Dewitt	Smith		521	772.25625	Harris County 4	Houston	San Augustine	675
5	Robertson		Smith	Jeff Davis	573	772.58125	Harris County 6	San Augustine		325
6	Grimes,Limestone		Harrison	Evangeline	621	772.88125	Jefferson	Brazoria	San Augustine	300
7		Dewitt	Gregg	Red River,Evangeline	745	773.65625	Harris County 3	San Augustine		775

### 16.1.34. San Jacinto County

San Jacinto County									
Adjacent Regions' <i>Original</i> CAPRAD Assignments				Region 51					
Region 49 Central Texas	Region 53 South Texas	Region 40 North Texas	Region 18 Louisiana	Chan	Center Freq	1st Reuse	Other Assigned	Other Assigned	Freq Spread (kHz)
1		Navarro, Gregg	Calcasieu, Bossier, Rapides	19	769.11875	Fort Bend	San Jacinto		
2	Bastrop, Limestone	Victoria	DeSoto, Allen	83	769.51875		Brazoria	San Jacinto	400
3	Robson, Bast, Limestone	Victoria	Caddo, Vermilion	203	770.26875		Brazoria	San Jacinto	750
4	Freestone	Goliad	Marion	471	771.94375		Brazoria	San Jacinto	1675
5	Milam	Vict, Guad	DeSoto, Allen	499	772.11875		Brazoria	San Jacinto	175
6	Robertson		Panola	527	772.29375		Brazoria	San Jacinto	175
7		Dewitt	Gregg	747	773.66875	Harris County 7		San Jacinto	1375

### 16.1.35. Shelby County

Shelby County									
Adjacent Regions' <i>Original</i> CAPRAD Assignments				Region 51					
Region 49 Central Texas	Region 53 South Texas	Region 40 North Texas	Region 18 Louisiana	Chan	Center Freq	1st Reuse	Other Assigned	Other Assigned	Freq Spread (kHz)
1		Smith		87	769.54375	Harris County 5	Shelby		
2			Webster	165	770.03125	Harris County 3	Shelby		487.5
3	Burleson	Dewitt	Smith	175	770.09375	Harris County 7	Shelby		62.5
4	Fayette		Rapides	213	770.33125	Harris County 6	Shelby		237.5
5	Caldwell		Calcasieu	249	770.55625	Harris County 3	Shelby		225
6	Fayette		Beauregard, Grant	335	771.09375	Galveston	Shelby	Walker	537.5
7		Victoria	Navarro	361	771.25625	Harris County 4	Shelby	Houston	162.5
8	Robertson	Gonzales	Smith	365	771.28125	Harris County 6	Shelby		25
9		Upshur		383	771.39375	Waller	Shelby		112.5
10	Robson, Bast	Victoria	Beauregard	445	771.78125	Harris County 2	Shelby		387.5
11	Fayette		Calcasieu	537	772.35625	Harris County 2	Shelby		575
12	Grimes, Limestone	Jackson		581	772.63125	Jefferson	Shelby		275
13	Travis		Henderson	797	773.98125	Harris County 6	Shelby		1350
14	Travis		Smith	867	774.41875	Montgomery	Shelby		437.5
15	Travis	Victoria	Smith	907	774.66875	Montgomery	Shelby		250
16	Limestone, Travis	Victoria	Smith	947	774.91875	Montgomery	Shelby		250

### 16.1.36. Trinity County

Trinity County										
Adjacent Regions' Original CAPRAD Assignments					Region 51					
	Region 49 Central Texas	Region 53 South Texas	Region 40 North Texas	Region 18 Louisiana	Chan	Center Freq	1st Reuse	Other Assigned	Other Assigned	Freq Spread (kHz)
1			Henderson	Sabine	205	770.28125	Harris County 3		Trinity	
2	Fayette			Beauregard, Grant	333	771.08125	Harris County 3	Trinity		800
3	Travis	Lavaca	Upshur	Caddo	509	772.18125	Harris County 1	Trinity		1100
4	Bastrop		Harrison	Acadia	561	772.50625	Harris County 2	Sabine	Trinity	325
5	Burl, Cald	Victoria	Smith	Vernon, Webster	627	772.91875	Harris County 7	Trinity		412.5
6		Calh, Guad	Henderson	Bossier, Grant	917	774.73125	Harris County 6	Sabine	Trinity	1812.5

### 16.1.37. Tyler County

Tyler County										
Adjacent Regions' Original CAPRAD Assignments					Region 51					
	Region 49 Central Texas	Region 53 South Texas	Region 40 North Texas	Region 18 Louisiana	Chan	Center Freq	1st Reuse	Other Assigned	Other Assigned	Freq Spread (kHz)
1	Brazos		Cherokee		15	769.09375		Brazoria	Tyler	
2		Vict, Guad	Harrison		41	769.25625	Harris County 3		Tyler	162.5
3	Bastrop, Limestone	Victoria		DeSoto, Allen	81	769.50625	Harris County 3		Tyler	250
4			Navarro	Caddo, Acadia	289	770.80625	Harris County 2		Tyler	1300
5			Upshur		381	771.38125	Harris County 3		Tyler	575
6	Caldwell	Refugio	Harrison	Jeff Davis	517	772.23125	Harris County 3		Tyler	850
7	Madison		Panola	Bienville, Rapides	613	772.83125	Harris County 3		Tyler	600
8		Lavaca	Gregg	Natchitoches	873	774.45625	Harris County 4		Tyler	1625



## 16.1.38. Orange County

Orange County										
Adjacent Regions' <i>Original</i> CAPRAD Assignments					Region 51					
Region 49 Central Texas	Region 53 South Texas	Region 40 North Texas	Region 18 Louisiana	Chan	Center Freq	1st Reuse	Other Assigned	Other Assgnd	Freq Spread (kHz)	
1		Smith	Natchitoches	45	769.28125	Harris County 4		Orange		
2		Smith		85	769.53125	Harris County 4	San Augustine	Orange	250	
3	Brazos	Victoria	DeSoto	131	769.81875	Harris County 5		Orange	287.5	
4	Travis		Jeff Davis, Bossier	179	770.11875	Montgomery		Orange	300	
5	Travis	Calhoun	Henderson	257	770.60625	Harris County 6		Orange	487.5	
6	Leon, Bast	Victoria	Panola	321	771.00625	Harris County 6		Orange	400	
7		Victoria	Navarro	363	771.26875	Harris County 5	Nacogdoches	Orange	262.5	
8	Leon, Caldwell	Refugio	Upshur	437	771.73125	Harris County 6		Orange	462.5	
9	Travis	Lavaca	Upshur	511	772.19375	Montgomery	Matagorda	Orange	462.5	
10	Brazos		Anderson	565	772.53125	Harris County 3		Orange	337.5	
11	Brazos		Gregg	605	772.78125	Harris County 1		Orange	250	
12	Washington		Gregg	707	773.41875	Galveston		Orange	637.5	
13	Limestone	Guadalupe	Harrison	781	773.88125	Harris County 1	Angelina	Orange	462.5	
14			Marion	831	774.19375	Montgomery		Orange	312.5	
15		Calhoun, Guadalupe	Henderson	919	774.74375	Montgomery		Orange	550	

## 16.1.39. Walker County

Walker County										
Adjacent Regions' CAPRAD Assignments					Region 51					
	Region 49 Central Texas	Region 53 South Texas	Region 40 North Texas	Region 18 Louisiana	Chan	Center Freq	1st Reuse	Other Assigned	Other Assigned	Freq Spread (kHz)
1	Travis	Calhoun	Upshur	Sabine	55	769.34375	Fort Bend		Walker	
2			Smith	Webster	127	769.79375			Walker	450
3	Fayette			Rapides	215	770.34375		Nacogdoches	Walker	550
4	Fayette		Rusk	Vernon	295	770.84375			Walker	500
5	Fayette			Beauregard, Grant	335	771.09375	Galveston	Shelby	Walker	250
6		Jackson		Webster, Allen	355	771.21875			Walker	125
7		Victoria		Cameron, Natchitoches	403	771.51875	Galveston	Nacogdoches	Walker	300
8		Calhoun, Gonzales	Henderson	Beauregard, Red River	491	772.06875	Fort Bend		Walker	550
9	Fayette			Calcasieu	539	772.36875			Walker	300
10	Bastrop			Beauregard	603	772.76875			Walker	400
11	Lee		Smith	Jeff Davis, DeSoto	719	773.49375			Walker	725
12	Fayette		Gregg	Calcasieu	791	773.94375	Galveston		Walker	450
13	Bastrop		Harrison, Navarro	Natchitoches	823	774.14375	Fort Bend		Walker	200
14		Gonzales		Caddo	903	774.64375	Fort Bend		Walker	500
15				Caddo	943	774.89375	Fort Bend		Walker	250

## 16.2. FCC Rules Sec. 90.531 Band Plan.

This is the band plan for the 763-775 MHz and 793-805 MHz public safety bands.

### 16.2.1. (a) Base and Mobile Use.

The 763-775 MHz band may be used for base, mobile or fixed (repeater) transmissions. The 793-805 MHz band may be used only for mobile or fixed (control) transmissions.

### 16.2.2. (b) Narrowband Segments.

There are two band segments that are designated for use with narrowband emissions. Each of these narrowband segments is divided into 960 channels having a channel size of 6.25 kHz as follows:

Frequency Range	Channel Numbers
769-775 MHz	1-960
799-805 MHz	961-1920

- (1) Narrowband interoperability channels. The following narrowband channels are designated for nationwide interoperability licensing and use: 23, 24, 39, 40, 63, 64, 79, 80, 103, 104, 119, 120, 143, 144, 159, 160, 183, 184, 199, 200, 223, 224, 239, 240, 263, 264, 279, 280, 303, 304, 319, 320, 641, 642, 657, 658, 681, 682, 697, 698, 721, 722, 737, 738, 761, 762, 777, 778, 801, 802, 817, 818, 841, 842, 857, 858, 881, 882, 897, 898, 921, 922, 937, 938, 983, 984, 999, 1000, 1023, 1024, 1039, 1040, 1063, 1064, 1079, 1080, 1103, 1104, 1119, 1120, 1143, 1144, 1159, 1160, 1183, 1184, 1199, 1200, 1223, 1224, 1239, 1240, 1263, 1264, 1279, 1280, 1601, 1602, 1617, 1618, 1641, 1642, 1657, 1658, 1681, 1682, 1697, 1698, 1721, 1722, 1737, 1738, 1761, 1762, 1777, 1778, 1801, 1802, 1817, 1818, 1841, 1842, 1857, 1858, 1881, 1882, 1897, 1898.

16.2.2.1. (i) Narrowband data Interoperability channels. The following channel pairs are reserved nationwide for the express purpose of data transmission only: 279/1239, 280/1240, 921/1881, and 922/1882.

16.2.2.2. (ii) Narrowband calling Interoperability channels. The following channel pairs are dedicated nationwide for the express purpose of Interoperability calling only: 39/999, 40/1000,

681/1641, and 682/1642. They may not be used primarily for routine, day-to-day communications. Encryption is prohibited on the designated calling channels.

16.2.2.3. (iii) Narrowband trunking Interoperability channels. The following Interoperability channel pairs may be combined with the appropriate adjacent secondary trunking channel pairs and used in trunked mode on a secondary basis to conventional Interoperability operations: 23/983, 24/984, 103/1063, 104/1064, 183/1143, 184/1144, 263/1223, 264/1224, 657/1617, 658/1618, 737/1697, 738/1698, 817/1777, 818/1778, 897/1857, 898/1858. For every ten general use channels trunked at a station, entities may obtain a license to operate in the trunked mode on two of the above contiguous Interoperability channel pairs. The maximum number of Interoperability channel pairs that can be trunked at any one location is eight.

- (2) Narrowband reserve channels. The following narrowband channels are undesignated and reserved: 37, 38, 61, 62, 77, 78, 117, 118, 141, 142, 157, 158, 197, 198, 221, 222, 237, 238, 277, 278, 301, 302, 317, 318, 643, 644, 683, 684, 699, 700, 723, 724, 763, 764, 779, 780, 803, 804, 843, 844, 859, 860, 883, 884, 923, 924, 939, 940, 997, 998, 1021, 1022, 1037, 1038, 1077, 1078, 1101, 1102, 1117, 1118, 1157, 1158, 1181, 1182, 1197, 1198, 1237, 1238, 1261, 1262, 1277, 1278, 1603, 1604, 1643, 1644, 1659, 1660, 1683, 1684, 1723, 1724, 1739, 1740, 1763, 1764, 1803, 1804, 1819, 1820, 1843, 1844, 1883, 1884, 1899, 1900.
- (3) Narrowband low power channels subject to regional planning. The following narrowband channels are designated for low power use for on-scene incident response purposes using mobiles and portables subject to Commission-approved regional planning committee regional plans. Transmitter power must not exceed 2 watts (ERP): Channels 1-8 paired with Channels 961-968, and Channels 949-958 paired with Channels 1909-1918.
- (4) Narrowband low power itinerant channels. The following narrowband channels are designated for low power use for on-scene incident response purposes using mobiles and portables. These channels are licensed nationwide for itinerant operation. Transmitter power must not exceed 2 watts (ERP): Channels 9-12 paired with Channels 969-972 and Channels 959-960 paired with Channels 1919-1920.
- (5) Narrowband state channels. The following narrowband channels are designated for direct licensing to each state (including U.S. territories, districts, and possessions): 25-36, 65-76, 105-116, 145-156, 185-196, 225-236, 265-276, 305-316, 645-656, 685-696, 725-736, 765-776, 805-

816, 845-856, 885-896, 925-936, 985-996, 1025-1036, 1065-1076, 1105-1116, 1145-1156, 1185-1196, 1225-1236, 1265-1276, 1605-1616, 1645-1656, 1685-1696, 1725-1736, 1765-1776, 1805-1816, 1845-1856, 1885-1896. Voice operations on these channels are subject to compliance with the spectrum usage efficiency requirements set forth in Sec. 90.535(d).

- (6) Narrowband general use channels. All narrowband channels established in paragraph (b) of this section, other than those listed in paragraphs (b)(1), (b)(2), (b)(4) and (b)(5) of this section are designated to public safety eligible's subject to Commission approved regional planning committee regional plans. Voice operations on these channels are subject to compliance with the spectrum usage efficiency requirements set forth in Sec. 90.535(d).

- (7) Secondary trunking channels. The following channel pairs are reserved for secondary trunking operations: 21/981, 22/982, 101/1061, 102/1062, 181/1141, 182/1142, 261/1221, 262/1222, 659/1619, 660/1620, 739/1699, 740/1700, 819/1779, 820/1780, 899/1859, and 900/1860. They may be used only in combination with the appropriate adjacent Interoperability channel pairs specified in paragraph (b) (1) (iii) of this section in trunked systems.

16.2.3. (c) [Reserved]

16.2.4. (d) Combining Channels.

Except as noted in this section, at the discretion of the appropriate regional planning committee, contiguous channels may be used in combination in order to accommodate requirements for larger bandwidth emissions, in accordance with this paragraph. Interoperability channels may not be combined with channels in another group except for channels for secondary trunking channels.

- (1) Narrowband. Subject to compliance with the spectrum usage efficiency requirements set forth in Sec. 90.535, two or four contiguous narrowband (6.25 KHz) channels may be used in combination as 12.5 KHz or 25 KHz channels, respectively. The lower (in frequency) channel for two channel combinations must be an odd (i.e., 1, 3, 5 \* \* \*) numbered channel. The lowest (in frequency) channel for four channel combinations must be a channel whose number is equal to  $1+(4xn)$ , where  $n$  = any integer between 0 and 479, inclusive (e.g., channel number 1, 5, \* \* \* 1917). Channel combinations are designated by the lowest and highest channel numbers separated by a hyphen, e.g., ``1-2" for a two channel combination and ``1-4" for a four channel combination.

- (2) [Reserved]

16.2.5. (e) Channel Pairing.

In general, channels must be planned and assigned in base/mobile pairs that are separated by 30 MHz. However, until December 31, 2006, channels other than those listed in paragraphs (b)(1) and (c)(1), may be planned and assigned in base/mobile pairs having a different separation, where necessary because 30 MHz base/mobile pairing is precluded by the presence of one or more co-channel or adjacent channel TV/DTV broadcast stations.

- 16.2.6. (f) Internal guard band. The internal guard band (768-769/798-799 MHz) is reserved.
- 16.2.7. (g) Broadband. The 763-768 MHz and 793-798 MHz bands are allocated for broadband communications pursuant to the Public Safety Broadband License.